REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-4, 7-11, and 14-34 are currently pending. Claims 5, 6, 12, and 13 have been canceled without prejudice; and Claims 1, 2, 7-9, 14-16, and 19-34 have been amended by the present amendment. The changes to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 5, 6, 8, 12, 13, 19, and 20 were objected to as containing various informalities; Claims 1-6, 21, 22, 29, and 32 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,295,691 to Uppaluri et al. (hereinafter "the '691 patent"); Claims 7, 8, 12, and 23 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 7,072,501 to Wood et al. (hereinafter "the '501 patent"); Claims 9-11, 14-18, 20, 24-28, 30, 31, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the '691 patent in view of the '501 patent; and Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the '691 and 501 patents, further in view of U.S. Patent No. 5,740,225 to Nabatame (hereinafter "the '225 patent").

Applicants wish to thank the Examiner for the interview granted Applicants' representative on December 2, 2008, at which time the outstanding rejection of the claims was discussed. However, no agreement was reached pending further consideration of the claims upon formal submission of response to the outstanding Office Action.

Applicants respectfully submit that the objections to the claims are rendered moot by the present amendment to Claims 8, 19, and 20; and the present cancelation of Claims 5, 6, 11, and 12. In particular, Claim 8 has been amended to correct the informality noted in the outstanding Office Action.

Amended Claim 1 is directed to a computer-aided diagnostic system, comprising: (1) a sick portion detecting device configured to detect a sick portion candidate based upon a simple X-ray image acquired by a first modality; (2) a correspondence displaying device configured to relate the position of the detected sick portion candidate to an X-ray CT image of a plurality of X-ray CT images acquired by a second modality different from the first modality, and to display the X-ray CT image having an axial face corresponding to a position of a selected mark that corresponds to the position of the sick portion candidate displayed on the simple X-ray image. The changes to Claim 1 are supported by the originally filed specification and do not add new matter. Applicants note that Claim 1 has been amended as suggested during the interview of December 2, 2008.

The '691 patent is directed to a method for computer aided processing of dual or multiple energy images acquired using an X-ray source. In particular, the '691 patent discloses the method includes providing a data source that includes a dual or multiple energy image set that includes an high energy image, a low energy image, a bone image, and a soft tissue image. Further the '691 patent discloses that method includes the steps of defining a region of interest within an image from the dual multiple energy image set; using a feature extraction algorithm to extract feature measures from the region of interest; using a feature selection algorithm on a region of interest to obtain candidate features and define a candidate region of interest, the candidate region of interest being a subset of the region of interest; classifying the candidate region of interest on each image; and reporting at least one of the feature measures on the region of interest.

As shown in Figure 6, the '691 patent discloses that the image data 210 includes a low energy image, a high energy image, a soft tissue image, and a bone image, which are used for selection of a region of interest in step 220, and optimal feature extraction in step 230. Further, the '691 patent discloses that, following identification 230 and classification 240, a

marker can be superimposed near or around a suspicious legion and that "[d]ual-energy CAD affords the ability to display markers for computer detected... nodules on any of the four images.... In this way, the reviewer may review only a single image upon which is superimposed and results from an array of CAD operations 200."[1] Further, as shown in Figure 15, the '691 patent discloses that the image data can include multiple CT images of each type in the image set.

However, Applicants respectfully submit that the '691 patent fails to disclose a correspondence displaying device configured to relate the position of the detected sick portion candidate (which is based upon a simply X-ray image) to an X-ray CT image of a plurality of X-ray CT images acquired by a second modality, and to display the X-ray CT image having an axial face corresponding to a position of a selected mark that corresponds to the position of the sick portion candidate displayed on the simple X-ray image, as recited in amended Claim 1. Applicants respectfully submit that the '691 patent is silent regarding relating a position of a sick portion candidate in a simple X-ray image to an X-ray CT image, and to display the X-ray CT image having an axial face corresponding to a position of a selected mark that corresponds to the position of the sick portion candidate displayed on the simple X-ray image. Rather, the '691 patent merely discloses that multiple low energy, high energy, soft tissue, and bone images can be used for feature extraction and classification of legions.

Accordingly, Applicants respectfully submit that the rejection of Claim 1 (and all similarly rejected dependent claims) is rendered moot by the present amendment to Claim 1.

Independent Claim 21 recites limitations analogous to the limitations recited in Claim 1 and has been amended in a manner analogous to the amendment to Claim 1. Accordingly,

[1] See '691 patent, column 10, lines 6-12.

for the reasons state above, Applicants respectfully submit that the rejection of Claim 21 is rendered moot by the present amendment to that claim.

Claim 22 is directed to a computer-aided diagnosing method, comprising (1) detecting a first sick portion candidate based upon a simple X-ray image acquired by a first modality; (2) detecting a second sick portion candidate based upon an X-ray CT image related to the same region of interest of the same subject acquired by a second modality different from the first modality; (3) comparing the results of detection at the first and second detecting, wherein positions of marks respectively selected based upon the first and second sick portion candidates respectively displayed on the simple X-ray image and on the X-ray CT image having an axial face are compared.

As discussed above, the '691 fails to disclose detecting a fist sick portion candidate based upon a simple X-ray image; detecting a second sick portion candidate based upon an X-ray CT image related to the same region of interest of the same subject acquired by a second modality, and wherein positions of marks were respectively selected based upon the first and second sick portion candidates respectively displayed on the simple X-ray image and on the X-ray CT image having an axial face are compared, as recited in amended Claim 21. Rather, the '691 patent merely discloses the display of markers on multiple CT images. Accordingly, Applicants respectfully submit that the rejection of Claim 22 is rendered moot by the present amendment to that claim.

Claim 2 recites limitations analogous to the limitations recited in Claim 22 and has been amended in a manner analogous to the amendment to Claim 22. Accordingly, for the reasons stated above, Applicants respectfully submit that the rejection of Claim 2 is rendered moot by the present amendment to that claim.

Amended Claim 7 is directed to computer aided diagnostic system, comprising: (1) a sick portion detecting device configured to detect a sick portion candidate based upon an X-

ray CT image acquired by one modality; (2) an image transforming device configured to transform volume image data acquired by the one modality into a digitally reconstructed radiograph using a selected viewpoint; (3) a correspondence displaying device configured to relate the position of the sick portion candidate detected by the sick portion detecting device to the digitally reconstructed radiograph and to display the digitally reconstructed radiograph corresponding to a position of a selected mark that corresponds to the position of the sick portion candidate displayed on the X-ray CT image having an axial face. The changes to Claim 7 are supported by the originally filed specification and do not add new matter.[2]

The '501 patent is directed to a system for rendering anatomical information of a body from topographic data obtained from a digital imaging apparatus including: (1) a first portion of a display for rendering a sequence of two dimensional tomographic sections obtained from tomographic data; (2) a second portion of a display for rendering the first volumetric view of the body, wherein the first volumetric view includes a third dimension acquired from the sequence of two-dimensional tomographic sections; (3) a third portion of the display for rendering a second volumetric view of a selected feature shown in the section being rendered on the first portion or the second portion of the display; and (4) a fourth portion of the display for displaying a report related to images displayed by the system. In particular, as shown in Figure 5, the '501 patent discloses a "legion navigator" 540 for selecting different regions of interest in an acquired data set or for selecting a particular nodule for display in another display portion. In particular, the '501 patent discloses that navigating or scrolling through the selector automatically updates all axial and volumetric display viewpoints. Further, the '501 patent discloses that the display system can include markers or other graphical representations to assist the user in examination of the displays, and that the images rendered

[2] See, e.g., Figure 13 and the discussion related thereto in the specification.

in a first, second, or third display can be controlled by the selection of a marker in a first, second, or third display.[3]

However, Applicants respectfully submit that the '501 patent fails to disclose an image transforming device configured to transform volume image data acquired by one modality into a digitally reconstructed radiograph using a selected viewpoint; and a correspondence displaying device configured to relate the position of a sick portion candidate detected by a sick portion detecting device (base on a X-ray CT image) to the digitally reconstructed radiograph and to display the digitally reconstructed radiograph corresponding to a position of a selected mark that corresponds to the position of the sick portion candidate displayed on the X-ray CT image, as recited in amended Claim 7. Applicants respectfully submit that the '501 patent fails to disclose the digitally reconstructed radiograph recited in Claim 7, and relating a position of a sick portion on an X-ray CT image to the digitally reconstructed radiograph, as recited in Claim 7. Accordingly, Applicants respectfully submit that the rejection of Claim 7 is rendered moot by the present amendment to that claim.

Independent Claims 8 and 23 recite limitations analogous to the limitations recited in Claim 7, and have been amended in a manner analogous to the amendment to Claim 7. Accordingly, for the reasons stated above, Applicants respectfully submit that rejections of Claims 8 and 23 are rendered moot by the present amendment to those claims.

Independent Claim 9 is directed to a computer-aided diagnostic system, comprising: (1) a first sick portion detecting device configured to detect a first sick portion candidate based upon an X-ray CT image acquired by one modality; (2) an image transforming device configured to transform volume image data acquired by the one modality into a digitally reconstructed radiograph using a selected viewpoint; (3) a second sick portion detecting device configured to detect a second sick portion candidate based upon the digitally

[3] See '501 patent, column 7, lines 44-54.

reconstructed radiograph ; and (4) a detection result synthesizing device configured to compare the results of detection by the first and second sick portion detecting devices, wherein the detection result synthesizing device compares positions of marks respectively selected based upon the first and second sick portion candidates respectively displayed on the X-ray CT image having an axial face and on the digitally reconstructed radiograph.

As discussed above, the '691 patent is directed to a method for the computer aided processing of dual or multiple energy images acquired using an X-ray source. However, as admitted in the outstanding Office Action, the '691 patent fails to disclose the claimed image transforming device. In particular, Applicants respectfully submit that the '691 patent fails to disclose an image transforming device configured to transfer volume image data acquired by one modality into a digitally reconstructed radiograph using a selected viewpoint, as recited in amended Claim 9.

Further Applicants respectfully submit that the '691 patent fails to disclose a detection result synthesizing device that compares positions and marks respectively selected based upon first and second sick portion candidates respectively displayed on the X-ray CT image having an axial face and on the digitally reconstructed radiograph, as recited in amended Claim 9.

As discussed above, the '501 patent is directed to a system for rendering anatomical information of a body from tomographic data obtained from a digital imaging apparatus, including four portions of a display. However, Applicants respectfully submit that the '501 patent fails to disclose an image transforming device configured to transform volume image data acquired by a modality into a digitally reconstructed radiograph using a selected viewpoint, as recited in amended Claim 9. Further, Applicants respectfully submit that the '501 patent fails to disclose a detection result synthesizing device that compares positions of marks respectively selected based on the first and second sick portion candidates respectively

displayed on a X-ray CT image having an axial face and on the digitally reconstructed radiograph, as recited in Claim 9.

Accordingly, no matter how the teachings of the '691 and '510 patents are combined, the combination does not teach or suggest the image transforming device and the detection result synthesizing device recited in amended Claim 9. Accordingly, Applicants respectfully submit that the rejection of Claim 9 is rendered moot and that Claim 9 patentably defines over any proper combination of the '691 and '501 patents.

Independent Claims 14-16 and 24-28 recite limitations analogous to the limitations recited in Claim 9. Further, Claims 14-16 and 24-28 have been amended in a manner analogous to the amendments to Claim 9. In particular, Applicants note that Claims 14 and 15 recite an image reconfiguring device configured to reconfigure an image based upon stereoscopic image data acquired by a modality that can sense plural X-ray CT images. Further, Applicants note that Claims 24 and 25 recite transforming volume image data acquired by one modality into a digitally reconstructed videograph using a selected viewpoint. As discussed above, these limitations are not disclosed by any proper combination of the '691 and '501 patent.

Accordingly, for the reasons stated above, Applicants respectfully submit that the rejections of Claims 14-16 and 24-28 are rendered moot by the present amendment to those claims.

Further, regarding the rejection dependent Claim 19 under 35 U.S.C. § 103(a), Applicants respectfully submit that the '225 patent fails to remedy the deficiencies of the '691 and '501 patents, as discussed above. Accordingly, Applicants respectfully submit that the rejection of Claim 19 is rendered moot by the present amendment to Claim 14.

Thus, it is respectfully submitted that independent Claims 1, 2, 7-8, 9, 14-16, and 21-28 (and all associated dependent claims) patentably define over any proper combination of the '691, 501, and '225 patents.

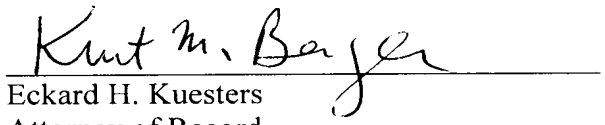
Consequently, in view of the present amendment, and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
EHK:KMB:hm
(OSMMN 08/07)



Eckard H. Kuesters
Attorney of Record
Registration No.: 28,870

Kurt M. Berger, Ph.D.
Registration No. 51,461

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